Complications associated with epidural steroid injection

TO THE EDITOR: We read with great interest the recently published article by Kraeutler et al.4 (Kraeutler MJ, Bozzay JD, Walker MP, et al: Spinal subdural abscess following epidural steroid injection. J Neurosurg Spine 22:90–93, January 2015). The authors presented a case of spinal subdural empyema, which is a rare but serious complication associated with epidural steroid injections (ESIs). We commend the authors’ early recognition and prompt treatment of this serious and potentially devastating complication, which led to significant improvement in the patient’s neurological status.

The efficacy of ESIs in the management of low-back pain and radiculopathy has been a matter of great controversy. There has been an absence of high-quality evidence to support their repeated use in management of chronic low-back pain with or without radiculopathy. The most recent guidelines from the American Association of Neurological Surgeons/Congress of Neurological Surgeons Joint Guidelines Committee recommend ESIs only as an option for short-term management of low-back pain, with very weak evidence (Level III) supporting their use.9 Moreover, a recent double-blinded, randomized controlled trial published in The New England Journal of Medicine demonstrated lack of efficacy at 6 weeks in clinical outcome when comparing ESIs with epidural lidocaine injections.3 Despite the lack of evidence for efficacy as a long-term management for chronic back pain due to spinal spondylosis and stenosis, the use of ESIs has increased dramatically in recent years, with an estimated 11 million injections performed in the US annually.1 While mostly benign, potential rare but serious complications, such as spinal epidural/subdural hematomas, spinal epidural/subdural abscesses, and even cerebral/spinal cord infarctions, have been reported in the literature.2,4,7,8,10,11

Given the limited data on long-term efficacy of repeated ESIs in patients with chronic back pain with or without radiculopathy, as well as small but potential chances of untoward complications, use of repeated ESIs in patients with chronic low-back pain should preferably be avoided. Even though an ESI has been shown to provide short-term relief in patients with back pain from stenosis, about a quarter of patients may not respond to ESIs with the first 2 injections; these patients should not be subjected to multiple subsequent injections given that there are small but real chances of significant complications,3 which cannot be ignored. In fact, in patients with obvious spinal stenosis on imaging and minimal or no response to the first ESIs, surgical options has been shown to result in good clinical outcome and should be timely entertained.6

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DISCLOSURE
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References
Response

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Atlantoaxial instability and Chiari malformation


In this paper, Prof. Atul Goel, one of the world leaders in craniocervical junction surgery, proposed that Chiari malformation (CM) (with or without concomitant basilar invagination) is secondary to atlantoaxial instability.2 He also proposed that C1–2 posterior instrumented fusion should be performed alone and without concomitant posterior fossa decompression, a well-accepted treatment in many referral centers around the world that routinely treat CM. Considering the controversial content of the article, I would like to make some comments about its content.

1) If this theory is true, why did tonsillar herniation or syringomyelia not develop in patients with other atlantoaxial instabilities? As an example, patients with chronic atlantoaxial traumatic instability and os odontoideum, among other atlantoaxial diseases, did not have tonsillar herniation. Atlantoaxial subluxation in the setting of rheumatoid arthritis is quite common, and tonsillar herniation. Atlantoaxial traumatic instability and os odontoideum, among other atlantoaxial diseases, did not have tonsillar herniation. Atlantoaxial subluxation in the setting of rheumatoid arthritis is quite common, and tonsillar herniation and syringomyelia are not mentioned as common radiological findings.

2) Spontaneous regression of syringomyelia in CM has been reported. How is it possible to explain this in the setting of atlantoaxial instability?3,6,9

3) There are many studies addressing reduction of the posterior fossa volume in patients with CM, as well as an association with platybasia and a shorter clivus.1,4,5,7,8 In his paper, Prof. Goel suggested that this theory does not seem to be valid. Why? The article did not explain this properly.

4) Can we put all congenital craniocervical malformations and their different forms of presentation together and treat all of them in the same way, with atlantoaxial fixation? Should patients with clear craniocervical instability and severe forms basilar invagination and bone anomalies be treated exactly like patients with mild to moderate cervical pain secondary to a 5-mm tonsillar herniation without syringomyelia? In my humble opinion, I do not think this make sense.

Additionally, I did not understand how a patient with CM without a clear and evident craniocephal or atlantoaxial instability must involve several ethical issues until further evidence is available.

I thank the Journal of Neurosurgery very much for the opportunity to try to clarify these points. I congratulate Prof. Atul Goel for his new and challenging theory for explaining congenital craniocephal malformations. I hope that he can answer this letter with his remarkable comments and unique view of craniocervical junction pathologies.

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